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Caching, Outboard
Motor
See 90
29 January 1959walt WE

MEMORANDUM FOR THE RECORD

SUBJECT: Test of Outboard Motor Caching Bag

1. The main purpose of this test was to evaluate the BIM zipper, a new zipper design being made by the New Zipper Company* in England and marketed as being waterproof. The bag is cylindrical in shape, measuring two feet in diameter by four feet in length, and is made of neoprene coated nylon fabric. The zipper is placed circumferentially around one end of the bag. Captain Alvin E. Naumann, USAF/TSS/TSL, procured the bag through the Uni-Industrial Trading Corporation, 225 East 46th Street, New York 17, New York. This firm is currently the sole source supplier for the BIM zipper in this country.
2. The bag was taken to Naval Ordnance Laboratory for indoor tank testing on 23 January along with other items furnished by TSS/WAD. Before immersion, a three h. p. outboard motor was padded around the skeg with rags and placed in the bag. Most of the internal air was evacuated, and the bag was closed with a minimum of difficulty in about fifteen seconds. It was felt that several small finger loops adjacent to the zipper along its entire length would provide grasping points to facilitate closing the bag. Weights were tied to the bag to overcome buoyancy.
3. At 1130 hours on 23 January the bag was immersed in eleven feet of water at approximately room temperature. The weights added some length to the system, and so the upper portion of the bag where the internal trapped air was located was only about five feet below the surface. After fifteen minutes observation only a very few extremely small air bubbles were seen escaping. They appeared to come from between the strands in the rope used to attach the anchor to the bag. This observation was repeated an hour later with no difference in leakage noted.
4. On 26 January the test tank was completely drained and then refilled to its full fifteen foot depth. This took several hours, during which the bag was not disturbed. After the tank was refilled, the uppermost portion of the bag was under a head of nine feet of water. When next inspected at 1000 hours on 27 January, many small air bubbles were seen escaping from the three seams above the zipper where the bag was assembled during fabrication. (This was a cold-cured bag, unvulcanized.) There was no conclusive evidence that any leakage was occurring at the zipper. It could be seen that the bag had lost about one-third of the trapped air inside.

*The New Zipper Company, Ltd., Berwick Avenue, Trading Estate,
Slough-Bucks

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5. At this time the bag was removed from testing, dried on the outside with an air hose and opened. No difficulty was encountered in opening the zipper. Upon removal of the motor a trace of moisture was noted in the bottom of the bag. It was impossible to tell where this water had entered. Inspection of the seams where air leakage was noted showed the seam construction to be inadequate. Because of the very encouraging results with the BDM zipper it is planned to fabricate several more bags for more complete testing in the future.

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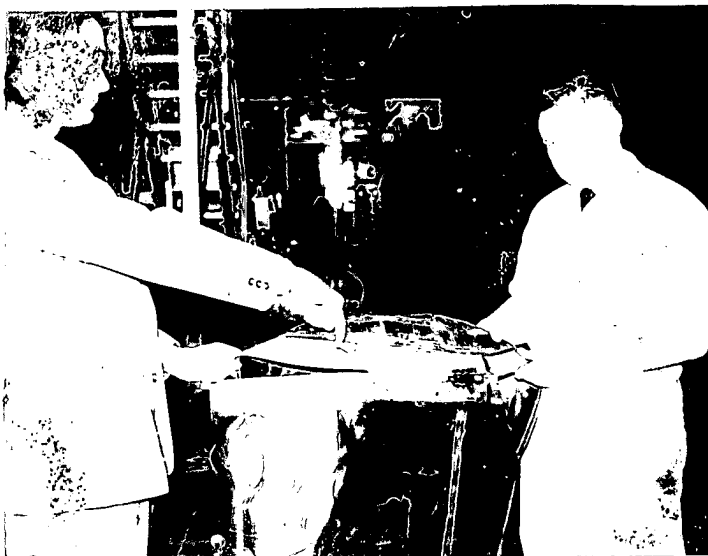
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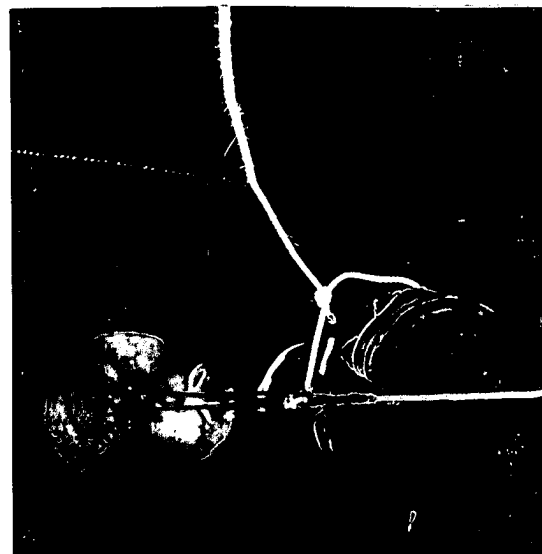
1. Outboard Motor Caching Bag (equipped with BIM Waterproof Zipper)



3. Appearance of Bag After Most of Internal Air has Been Removed



2. Bag Zipper Being Pulled Closed Prior to Immersion Testing by Apparently Pessimistic Test Crew



4. Bag with weights Attached Being Retrieved from Test Tank

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